Sandia National Laboratories

WATER SAFETY, SECURITY, AND SUSTAINABILITY

Desalination Technology Roadmap Development

Vision 2002

Background

A technology roadmap is a program-planning document that identifies the critical system requirements, the process performance targets and the technology alternatives and milestones for meeting those targets. The roadmap identifies precise objectives with their associated time horizon and helps focus resources on the critical technologies that are needed to meet those objectives. In effect, the technology roadmap identifies alternate technology "roads" for meeting certain performance objectives.

Approach

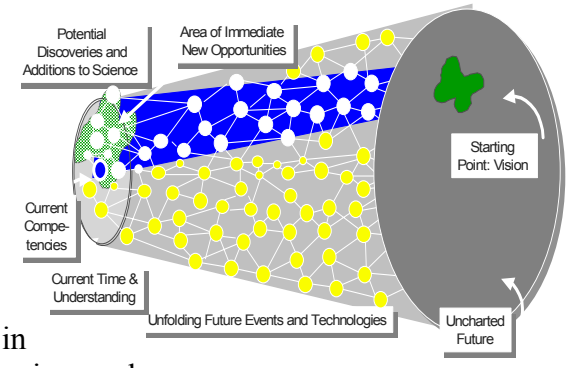
A desalination technology roadmap serves a number of critical developmental needs. There are multiple organizations sponsoring desalination research, both nationally and internationally. These efforts have led to substantial technological improvements over the past 50 years. With these gains however, the need for coordinating future activities is even greater as the need for desalination grows. The U. S. government is interested in funding critically needed desalination research, when the roadmap process focuses this research. A federal partnership between Sandia National Laboratories and the Bureau of Reclamation has been established in support of desalination research.

The desalination technology roadmap development has consisted of three phases. The first phase consisted consist of three steps: the identification of specifically articulated needs, the identification of process leaders and sponsors, and the definition of the scope of the process. The second phase was the development of the roadmap through a sequence of small group and larger group meetings. The third phase consisted of the critique, validation and review of the results. The structure of the process to define the roadmap was individually tailored to the identified needs and the structure of the core committee. This structure was be determined jointly by the roadmapping consultant and the core committee.

Vision

The vision for desalination technology provides the necessary direction for future research by using our understanding of current competencies to help map the future.

By 2020, water purification and desalination technologies will contribute significantly to meeting the need to assure a safe, sustainable, affordable, and adequate water supply for the United States.



In support of this vision, an implementation strategy will assist in the realization of the vision. This strategy may include the following goals:

- Achieve economic competitiveness with conventional water sources
- Maintain sustained desalination growth
- Achieve an environmentally friendly process
- Match all national water quality needs

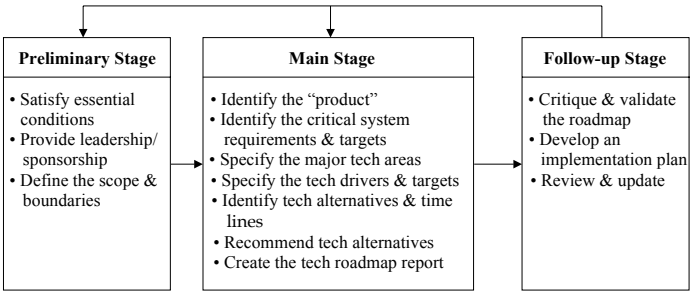
Roadmapping Process

Purpose of the Desalination Roadmap

The purpose of the desalination roadmap is to guide desalination research, technology, manufacturing, markets and policy through the year 2020.

Needs Driven Process

The desalination roadmap is needed to focus future research so that specific needs are met. A needs driven process assures that research activities meet programmatic goals. The roadmap committee specifically articulated these needs.



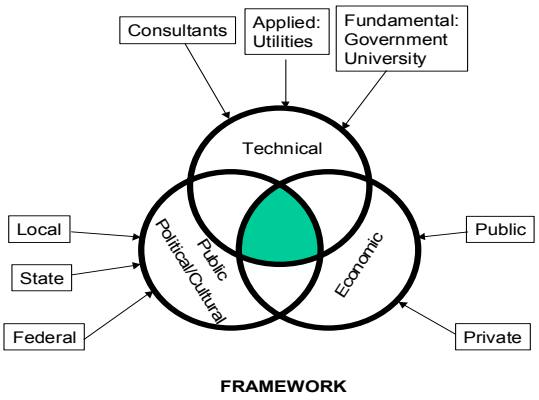
Candidate Participants

Participants for this roadmapping process were selected from among water research organizations, water use organizations, government agencies, national laboratories, state water agencies, equipment manufacturers, and environmental agencies.

Essential Conditions

The following conditions must be present to successfully develop and implement the roadmap.

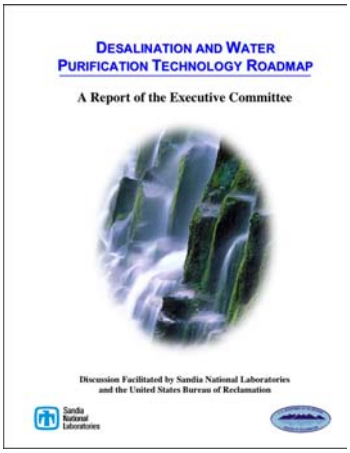
- A perceived need
- Needs driven - not a "solution looking for a problem"
- Multiple parties involved
- Adversarial conditions must not exist between parties
- Industry "umbrella," consortium needed
- This consortium must develop framework but not stifle creativity



FRAMEWORK

Schedule

- Develop the roadmap process, candidate participant list, and define core working group – January, 02
- Socialize process by contacting key participants and soliciting input into the process in addition to scheduling workshops – February, 02
- Conduct workshops to define roadmap – April, and May, 02
- Develop draft reports for each workshop
- Complete draft of roadmap for participants review – July, 02
- Receive review comments on roadmap – September, 02
- Incorporate final comments and issue completed roadmap – February, 03



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